

AMENDMENTS TO THE CLAIMS

1-78. (canceled)

79. (currently amended) An integrated biochip system for sample preparation or analysis, comprising one or more single chips,
wherein at least one of said one or more single chips is a multiple force chip;
further wherein said multiple force chip comprises multiple functional elements in different structurally linked layers that are vertically oriented with respect to one another;
further wherein said multiple force chip comprises at least one particle switch;
further wherein said particle switch comprises at least three sets of electrodes that are independent of one another and can move particles along different pathways; and
further wherein said integrated biochip system can perform two or more sequential tasks, wherein at least one of said two or more sequential tasks is a processing task.

80. (previously presented) The integrated biochip system of claim 79, wherein said multiple force chip further comprises at least one acoustic element.

81. (previously presented) The integrated biochip system of claim 79, wherein said multiple force chip further comprises at least one electromagnetic element.

82. (previously presented) The integrated biochip system of claim 79, wherein said multiple force chip further comprises at least one electrode.

83. (previously presented) The integrated biochip system of claim 79, wherein said multiple force chip further comprises a traveling wave dielectrophoresis electrode array layer.

84. (previously presented) The integrated biochip system of claim 79, further comprising at least one chamber.

85. (previously presented) The integrated biochip system of claim 83, wherein said traveling wave dielectrophoresis electrode array layer can move one or more sample components from at least one area of at least one chip of said system to at least one other area of said at least one chip of said system by traveling wave dielectrophoresis.

86. (previously presented) The integrated biochip system of claim 79, comprising an array of electromagnetic units; wherein said array of electromagnetic units can move one or more sample components from at least one area of at least one chip of said system to at least one other area of said at least one chip of said system by traveling wave magnetophoresis.

87. (previously presented) The integrated biochip system of claim 79, wherein a sample applied to said integrated biochip system can remain continuously within said system from the beginning of the first of said two or more sequential tasks until the end of the last of said two or more sequential tasks performed by said system.

88. (previously presented) The integrated biochip system of claim 79, wherein said integrated biochip system is automated.

89. (previously presented) The integrated biochip system of claim 79, comprising two or more chips.

90. (previously presented) The integrated biochip system of claim 89, wherein at least two of said two or more chips can be, for at least a part of the time during the operation of said integrated biochip system, in fluid communication with one another.

91. (previously presented) The integrated biochip system of claim 89, wherein one or more sample components can be moved from at least one of said two or more chips to at least one other of said two or more chips by a mechanism other than fluid flow.

92. (previously presented) The integrated biochip system of claim 91, wherein a traveling wave dielectrophoresis electrode array or an array of electromagnetic units can move

sample components from at least one of said two or more chips to at least one other of said two or more chips by traveling wave dielectrophoresis or traveling wave magnetophoresis.

93. (previously presented) The integrated biochip system of claim 79, wherein said electrodes of said particle switch are connected at a common branch point.

94. (previously presented) The integrated biochip system of claim 79, where in said electrodes of said particle switch are connected to out-of-phase signals.

95. (currently amended) An integrated biochip system for sample preparation or analysis, comprising one or more single chips,

wherein at least one of said one or more single chips is a multiple force chip;

further wherein said multiple force chip comprises multiple functional elements in different structurally linked layers that are vertically oriented with respect to one another;

further wherein said multiple force chip comprises at least one traveling wave magnetophoresis structure;

further wherein said traveling wave magnetophoresis structure comprises an array of electromagnetic units such that a magnetic particle or magnetizable particle is transferred from one location to another; and

further wherein said integrated biochip system can perform two or more sequential tasks, wherein at least one of said two or more sequential tasks is a processing task.

96. (previously presented) The integrated biochip system of claim 95, wherein said multiple force chip further comprises at least one acoustic element.

97. (canceled)

98. (previously presented) The integrated biochip system of claim 95, wherein said multiple force chip further comprises at least one electrode.

99. (previously presented) The integrated biochip system of claim 95, wherein said multiple force chip further comprises a traveling wave dielectrophoresis electrode array layer.

100. (previously presented) The integrated biochip system of claim 95, further comprising at least one chamber.

101. (previously presented) The integrated biochip system of claim 99, wherein said traveling wave dielectrophoresis electrode array layer can move one or more sample components from at least one area of at least one chip of said system to at least one other area of said at least one chip of said system by traveling wave dielectrophoresis.

102. (previously presented) The integrated biochip system of claim 95, comprising an array of electromagnetic units, wherein said array of electromagnetic units can move one or more sample components from at least one area of at least one chip of said system to at least one other area of said at least one chip of said system by traveling wave magnetophoresis.

103. (previously presented) The integrated biochip system of claim 95, wherein a sample applied to said integrated biochip system can remain continuously within said system from the beginning of the first of said two or more sequential tasks until the end of the last of said two or more sequential tasks performed by said system.

104. (previously presented) The integrated biochip system of claim 95, wherein said integrated biochip system is automated.

105. (previously presented) The integrated biochip system of claim 95, comprising two or more chips.

106. (previously presented) The integrated biochip systems of claim 105, wherein at least two of said two or more chips can be, for at least a part of the time during the operation of said integrated biochip system, in fluid communication with one another.

107. (previously presented) The integrated biochip system of claim 105, wherein one or more sample components can be moved from at least one of said two or more chips to at least one other of said two or more chips by a mechanism other than fluid flow.

108. (previously presented) The integrated biochip system of claim 107, wherein a traveling wave dielectrophoresis electrode array or an array of electromagnetic units can move sample components from at least one of said two or more chips to at least one other of said two or more chips by traveling wave dielectrophoresis or traveling wave magnetophoresis.

109. (previously presented) The integrated biochip system of claim 95, wherein at least one of said active chips is a particle switch chip.

110. (previously presented) The integrated biochip system of claim 95, wherein said array of electromagnetic units can be sequentially addressed.